

Washington Park Arboretum

# BULLETIN



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The Washington Park Arboretum is managed cooperatively by the University of Washington Botanic Gardens and Seattle Parks and Recreation; the Arboretum Foundation is its major support organization.

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# CONTENTS

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- 2 Dr. Treasure—*Paige Miller*
- 3 Five Fabulous Ferns for Northwest Gardens—*Richie Steffen*
- 8 HIDDEN TREASURES OF THE ARBORETUM: ‘Sweet Shadow’ Sugar Maple—*Daniel Mount*
- 10 The Other Japanese Maples—*Randall Hitchin*
- 15 Tree Down: *Armillaria* Strikes Terror in a Seattle Garden—*Jean Colley*
- 20 Geology of the Arboretum, PART II: There’s Soil Under Them There Plants!—*Paige Embry*
- 24 PLANT ANSWER LINE: “Self-Cleaning” Witch Hazels—*Rebecca Alexander*
- 26 IN A GARDEN LIBRARY: New Books for Northwest Gardeners—*Brian R. Thompson*



ABOVE: Fall color beginning to show on a Japanese maple (*Acer palmatum* ‘Osakazuki’) in the Woodland Garden.  
To learn about other species of Japanese maple, see page 10.

ON THE COVER: Japanese beautyberry (*Callicarpa japonica*) in the Witt Winter Garden

# Dr. Treasure

**S**hortly after I discovered Facebook, I posted my spring 2009 *Bulletin* letter about the Arboretum. Back came a comment, "Do you know John Wott?" To which I replied, "Yes, he is one of the treasures of the Arboretum."

And so he was and still is. In the years since, I have come to marvel at all the ways that he shares his love of this place and makes us all richer for it.

Although he retired as UW's Director of the Arboretum a decade ago, he remains tireless in what he does for us. Take just this past year or so. He gave a witty lecture to our members and volunteers on the history of the Arboretum and a Walk & Talks tour for our Arbor Circle members.

He hosted two dinner parties at his home and garden (auction items for the Opening Night Party), and then hosted the entire horticulture staff for a third one. He organized a week-long tour of Northwest gardens for leaders of the American Horticultural Society that included visits to Pacific Connections in the Arboretum—and to his spectacular personal garden, abloom with lilies, fuchsias and subtropicals, such as yellow-trumpeted brugmansia.

Did I mention that he loves to party? Whether it is filling a table for our Opening Night at the Flower & Garden Show or hosting hort friends from all over the world, he does love to have fun. In my mind's eye, I will always see him with his shillelagh in one hand and a Manhattan in the other.

But he can be serious too. He established a scholarship for graduate students in horticulture at UW and he also gives generously to the Arboretum Foundation. When we needed a knowledgeable and politically astute volunteer to serve for six months on the Arboretum's project



review committee, he stepped in. And when the University administration was dividing up the funds it received for SR 520 mitigation, he was fierce in his insistence that UW Botanic Gardens receive its fair share.

Perhaps his greatest service is as wise counsellor. He knows the history, the issues, the stresses and strains of the complex partnership here. He uses his deep connections and close relationships with all three partners to help us to make things work. I find his advice invaluable, as does Dr. Sarah Reichard, the current director of UW Botanic Gardens. "John's knowledge about the Arboretum helps to guide us even years after his retirement," says Dr. Reichard.

Thank you, Dr. Treasure, for all that you do for the Arboretum. Your love for this place is our good fortune. ~

Cheers,

*Paige Miller*

Paige Miller, Executive Director,  
Arboretum Foundation



# ERN FOUNDATION FAVORITES



## Five Desirable Plants for Every Northwest Garden

TEXT AND PHOTOS BY RICHIE STEFFEN

Over the last several years, the Hardy Fern Foundation has maintained, with the help of volunteers and the Arboretum staff, the Signature Bed and surrounding beds outside of the Graham Visitors Center. These beds were designed to give gardeners an idea of the diversity

ABOVE: The beautiful *Blechnum chilense*, introduced to Northwest gardens by the legendary Betty Miller.





of the world's ferns and to show how they can be used in a garden setting. A quick walk around these small gardens shows the casual observer that not all ferns look alike and provides a taste of the textural delight that can be had in nearly any garden in the Northwest.

So many ferns thrive in our region that it can be overwhelming to select only a few to plant in your garden. Most gardeners are familiar with some of our stellar native ferns for the landscape, with sword fern, *Polystichum munitum*, and deer fern, *Blechnum spicant*, topping the list. These natives are very deserving of a home in the garden. (And frankly, some of them, such as sword fern and the lady fern, *Athyrium filix-femina* var. *cyclosorum*, will often make themselves at home in the garden whether they are invited or not!) But what are some other ferns worthy of our attention? This year marks the 25th anniversary of the Hardy Fern Foundation, and what better way to celebrate than to highlight some of the choicest, most resilient, and less commonly planted ferns that the Foundation has championed for our Northwest gardens.

#### ***Adiantum venustum***

The elegance of maidenhair ferns can be matched by few other plants. This queen of the garden is

represented by several hardy species, but one of the most useful is the Himalayan maidenhair, *Adiantum venustum*. This hardy, low, evergreen species makes a stunning groundcover. The triangular fronds are composed of papery, translucent, bright-green leaflets, each shaped like a tiny gingko leaf. All of these leaflets are delicately connected on thin wiry black stems. The beauty of this ground cover is apparent in the way the fronds overlap each other, creating a fine-textured and layered pattern with fresh, pale-green new fronds overlaying older, deeper-green fronds. Though delicate in appearance, this maidenhair is quite tough and adaptable in the garden. Unlike many other types of maidenhair, *Adiantum venustum* prefers a well-drained soil rather than a constantly moist situation, and so established plantings only require occasional summer watering. The plant will thrive in moderate to bright or open shade, making it an excellent choice for woodland gardens.

Once only available through slow-to-establish divisions, this choice fern is now being micro-propagated in laboratories. These tissue-cultured plants are surprisingly vigorous and establish quickly in the garden. Spreading six to 10 inches a year, Himalayan maidenhair will quickly make a dense groundcover. Even

OPPOSITE: The delicate fronds of *Adiantum venustum*.

BETWEEN: New fronds of *Athyrium otophorum* boast purple stems and pale-green leaflets.

though this fern is evergreen, I recommend cutting it back in late December or January. The shrimp-pink new fronds start emerging by late February, and cutting the plant back at a later date runs the risk of removing the first flush of growth.

### ***Athyrium otophorum***

The genus *Athyrium* contains some of the best garden ferns and some of the worst! Our overly aggressive native *Athyrium filix-femina* var. *cyclosorum* is beautiful in the spring, with robust, brilliant green fronds reaching three to four feet tall; but then the fronds collapse in summer, leaving a haggard, tatty plant that freely produces young new ferns in the middle of more desirable plants and in every crack and crevice

in patios and garden walls. A much better choice is the stylish *Athyrium otophorum*. This lovely fern from eastern Asia, saddled with the mundane common name eared lady fern, has colorful fronds that complement a graceful arching vase shape. In late April to early May, new fronds emerge with deep-purple stems contrasting against pale, whitish-green leaflets. As the foliage matures it retains a pale-minty color that will brighten shady areas through the growing season. Although this fern is not evergreen, its foliage will hold up well into late autumn. Fully grown plants reach about 15 to 18 inches tall and slightly wider, making the fern useful even in small gardens. Plant *Athyrium otophorum* in moderate to light shade, and in good soil supplemented with regular summer watering.



### ***Blechnum chilense***

The unusual and eye-catching Chilean hard fern, *Blechnum chilense*, holds a special place at the Elisabeth C. Miller Botanical Garden, where I work. The unique fern was introduced to North America by Mrs. Miller in her never-ending quest for excellent foliage plants. Nearly all of the Chilean hard ferns found in gardens today can be traced back to Mrs. Miller's original plant. The robust spreading habit of this evergreen fern makes it easy to share with others, and the attractive, leathery, dark-green fronds make it desirable to all who see it. This fern performs best in protected locations with moist soils and nearly full sun. If the plant is properly sited, its fronds can reach up to five or six feet in height. If it is battered down by a cold winter, it will likely stay up to two or three feet tall. It is important to protect the crown with mulch for the first two winters to allow the roots to establish and enable the plant to begin developing side runners, which will eventually form a colony of plants. If you want to slow the spread of this fern, plant it in dry shade, where the fronds will be shorter and the growth less robust.

### ***Dryopteris tokyoensis***

Many urban gardens have limited space. A favorite for tight growing conditions is *Dryopteris*



*tokyoensis*, the Tokyo wood fern. Slim, narrow fronds arranged in a narrow, upright vase shape allow the plant to fit into nearly any garden. The bright emerald green leaves will glow in a location where the early morning or late afternoon sun can shine through them. This choice *Dryopteris* is, of course, native to Japan, but also drifts into

## **The Hardy Fern Foundation Celebrates 25 Years**

The Hardy Fern Foundation (HFF) celebrates its 25th anniversary this year. Based at the Rhododendron Species Botanical Garden in Federal Way, Washington, the organization was founded in 1989 to establish a comprehensive collection of the world's hardy ferns for display, testing, evaluation, public education and introduction to the gardening and horticultural community. Many rare and unusual species, hybrids and varieties are being propagated and tested in selected environments for their different degrees of hardiness and ornamental garden value. Several founding members of the HFF were active members of the Arboretum Foundation. Since the beginning of the HFF, the two organizations have maintained a close relationship that continues today with the HFF stewardship of the Signature Bed and nearby entry gardens of the Graham Visitors Center.

A final celebratory event, the Fall Fern Social, will be held at the newly built educational facilities of the Bellevue Botanic Garden, on October 11. This event will feature the largest display of fronds on the West Coast, along with a guest speaker and experts available to identify ferns. For more information about the social or the HFF, visit [www.hardyfern.org](http://www.hardyfern.org) or call 253-838-4646. Foundation membership starts at \$25, and benefits include a quarterly newsletter, free entry to the Rhododendron Species Garden and access to the HFF spore exchange.



OPPOSITE: The slim, emerald-green leaves of *Dryopteris tokyoensis*.

ABOVE: The feathery, butter-yellow fall foliage of *Osmunda regalis* 'Decomposita'.

other Southeast Asian countries. In the garden, give it a site with good, regularly moist soil and bright, open shade or morning sun. At maturity, the plant will reach about 24 to 30 inches tall, but only have a spread of 12 to 15 inches.

#### ***Osmunda regalis***

One of the most dramatic large ferns is the extremely tough and hardy royal fern, *Osmunda regalis*. This stately giant has an enormous natural distribution, from Europe and North, Central and South America to Asia, Africa, Madagascar and the islands of Mauritius and Reunion. The North American variety, *Osmunda regalis* var. *spectabilis*—native to the eastern half of the continent—is a fine plant reaching three to four feet in height, but the European cultivars can be truly impressive reaching over six feet in height. Some of the finest selections are 'Purpurascens', 'Undulatifolia' and 'Cristata'.

This fern grows best with some sun. If it is in too much shade, the fronds become lax and brittle

by midsummer. Providing at least a half day of sun will make the fronds stand tall and upright. The royal fern is deciduous and is one of the only ferns with good fall color, showing a clear butter yellow in early October. Occasionally, very rare cultivars can be found in the Northwest. A recent introduction to the area by Sue Olsen, one of the founders of the Hardy Fern Foundation, is *Osmunda regalis* 'Decomposita,' grown from spore from a German collector's garden. The foliage of this unusual form is more finely divided than that of the straight species and gives the mature plant a uniquely feathery look. Have patience with 'Decomposita', because it will not show this foliage characteristic for the first few years. ~

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**RICHIE STEFFEN** is the Curator at the Elisabeth C. Miller Botanical Garden and a member of the "Bulletin" Editorial Board. He is also vice president of the board of directors of the Hardy Fern Foundation.

OFF THE BEATEN PATH:

## Hidden Treasures of the Arboretum



### 'Sweet Shadow' Sugar Maple

TEXT AND PHOTOS BY DANIEL MOUNT

No tree is more emblematic of the autumnal glories of New England's hardwood forests than the sugar maple (*Acer saccharum*). Yet this tree of seven subspecies and three varieties, which some botanists retain as separate species, has a far wider range. Several post-glacial remnant populations occur in the cloud forests of Guatemala and Mexico, at the southern extremes of the species' range. The sugar maple

can also be found as far west as the Dakotas and as far south as Georgia and Texas. But it is found most abundantly in the mixed deciduous forest of the Great Lakes and St. Lawrence basins, and along the northeastern seaboard, where it's often the dominant species.

There are 16 sugar maples planted throughout Washington Park Arboretum. These 16 trees represent the straight species, as well as three subspecies, one variety and two cultivars. One of these cultivars, 'Sweet Shadow', stands out among all the rest for its beauty.

'Sweet Shadow' appeared in the late 1950s as a chance seedling in Powell Valley Nursery, a grower of sugar maples in Gresham, Oregon. Plantsman Darrold D. Belcher noticed the exceptional, deep-lobed leaves of this seedling

ABOVE: The deeply lobed, gold-colored foliage of *Acer saccharum* 'Sweet Shadow'.

## A Sweet Harvest

Maple syrup, the crop that needs no sowing or hoeing, was part of the Native American diet long before Europeans landed on this continent. According to legend, woodpeckers taught the Algonquin tribes to “drink” the sap of the maple tree, though other legends say this knowledge came from squirrels. Sugaring season, which takes place between late winter and early spring—when the maple tree’s rising sap is sweet to taste—was a time of celebration for the natives. The first full moon of spring was called the “sugar moon,” and it was welcomed with a maple-themed dance. European settlers quickly took to this celebratory sugaring and the syrup’s energizing effects. High taxes on cane sugar kept the maple syrup industry strong until the early 20th century. Since then, production has fallen off drastically. Still, in the United States, maple syrup production in 2014 totaled 3.17 million gallons of finished product, down 10 percent from 2013, due to last winter’s extreme cold.

and began vegetative reproduction of it by grafting its buds onto regular sugar maples. Pleased with his new discovery, he applied for a patent in 1960 and received it in 1962, trademarking this unique maple.

A year later, in April of 1963, two six-foot saplings arrived at the Arboretum and were planted the following December. They grew vigorously; one was recorded as being 33 feet tall in 1977, a mere 14 years after its arrival. Dan Hinkley, in his 1985 thesis on the maples of the Arboretum, gave these two trees his highest rating. Today, though showing some signs of age, they are still superb members of the collection.

Yet unfortunately, the ‘Sweet Shadow’ maples are rarely seen—even though they are not far from the well-travelled gravel of Azalea Way. Growing at the south end of the Viburnum Collection,



they are concealed within a matrix of native and collection plants directly alongside the creek, just east of Lake Washington Boulevard. (The easiest way to find them, if you’re walking south along Azalea Way, is to turn right on the path adjacent the Hybrid Rhododendron Garden, follow it all the way to the creek, and walk south along the creek path until it bends abruptly at the site of the maples. Two specimens of yellow buckeye, *Aesculus flava*, stand close by.)

Both trees demonstrate the lovely open, oval crown of the sugar maple, but their wonderful, deeply lobed leaves give them a softer texture. Though they are beautiful of form and leaf throughout the year, it’s in October—when their foliage turns from green to orange—that they shine among the surrounding shrubs and trees, casting a sweetly golden shadow. ~

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DANIEL MOUNT is an estate gardener, garden writer and member of editorial board of the “Bulletin.” He lives on a small farm in the Snoqualmie Valley. Read more of his reflections on plants and gardening at [www.mountgardens.com](http://www.mountgardens.com).



## The Other Japanese Maples

TEXT AND PHOTOS BY RANDALL HITCHIN

*K*nowingly or not, almost anyone speaking about “Japanese maples” is really talking about just one species, *Acer palmatum*. And with more than 1000 named selections arising from that single species, the apparently endless variation found within *Acer palmatum* would seem to be enough to satisfy even the most-jaded gardener.

Indeed, the rich diversity of cultivars might also persuade one to think that this is the *only* maple species native to Japan, as if there simply wasn’t room left for another.

However, *Acer palmatum* and its monopoly over the idea of what constitutes a “Japanese maple” conceals remarkable truths about the biodiversity of the genus *Acer*. To the surprise of most, *Acer palmatum* is only



**ABOVE:** The hexagonal leaves of *Acer capillipes*. **INSET:** The striped bark of *Acer capillipes*, also known as the red snakebark maple.

**OPPOSITE:** The rounded leaves of *Acer shirasawanum* look like elegant paper fans.

one of 24 maple species that naturally occur within the Japanese archipelago! As a point of comparison, the floristically rich state of California, only slightly larger in land area than Japan, has just four native maple species. While a comprehensive exploration of the Japanese maple species is beyond the scope of this article, a brief sojourn through the most notable and garden-worthy species makes for a fascinating adventure. And the best way for a traveler to navigate this route is by leapfrogging through the subdivisions or “sections” of the genus *Acer*.

A good first stop on this trip would be the full moon maple, *Acer japonicum*. This species is located in the Section *Palmata*, as is its very close relative *Acer palmatum*. However, the differences between the two are immediately apparent. The leaves of the full moon maple are nearly round in outline and typically have nine or 11 lobes. (*Acer palmatum*, as its name suggests, has palm-shaped leaves, with five, seven, or nine deeply divided lobes.) The lobes are shallowly divided,

only a third of the way to the base, creating a strong resemblance to another very close relative, our native vine maple, *Acer circinatum*. This small and graceful tree can reach as much as 30 feet high in cultivation and up to 45 feet in its native range on the main islands of Honshu and Hokkaido. It is typically multi-stemmed and its rich orange, red and burgundy autumn coloration is as spectacular as it is reliable. While not the source of nearly as many cultivars as *Acer palmatum*, the full moon maple has produced a number of excellent selections, including the gracefully weeping ‘Green Cascade’, the majestic ‘O isami’, and the delightfully ferny ‘Aconitifolium’.

*Acer shirasawanum* is yet another wonderful destination in the Section *Palmata*. Like *Acer japonicum*, this species is also a Japanese endemic and inhabits the main islands of Honshu, Shikoku and Kyushu. In its native forests, this slow-growing understory species makes a small, multi-stemmed tree of remarkable grace. In the





wild, it is reported to reach more than 40 feet in height, while in cultivation, a specimen half that size would be considered noteworthy. The two-inch leaves are pleated, almost perfectly round, and have very shallow divisions between the lobes, creating the effect of an elegant paper fan. Cold hardy to USDA Zone 6, and with leaves that resist sunburn better than most maples, *Acer shirasawanum* exhibits a general toughness and adaptability that belies its graceful demeanor. Most famous among the cultivars selected from this species is 'Aureum', which was introduced to the West from Japan in 1865 and is sometimes called the golden moon maple. With foliage that flushes bright yellow in spring, turning soft yellow-green in summer, and gold to orange to red in fall, this cultivar gives dramatic color shifts throughout the season. Unlike the species and its other cultivars, 'Aureum' will burn in hot sun and so performs best in a lightly wooded setting, where it is very effective at introducing light and color. Other great selections include 'Autumn Moon', a seedling of 'Aureum' with remarkable burnt-orange foliage, and 'Ogura yama', with leaves clad in a layer of silky, silvery hairs.

Leaving behind the Section *Palmata*, we discover the vine-leaf maple, *Acer cissifolium*. This lovely maple is located in Section *Negundo*,

and its appearance comes as a surprise to many. The leaves are trifoliate, or composed of three leaflets, and resemble the foliage of the common house plant called grape-leaf ivy (*Cissus rhombifolia*). The jagged-edged leaflets emerge a soft yellow-green, contrasting beautifully against the deep-pink petioles. In autumn, these rather un-maple-like leaves turn yellow with red highlights. Found native on all of the main Japanese islands, this species occurs in low-elevation forests. In maturity, it can reach 30 to 40 feet in height. The canopy is broad and mushroom-shaped and often has branches that curve and contort with graceful asymmetry.

Arriving at the Section *Macrantha*, the traveler discovers a treasure trove. This section, commonly known as the stripebark or snakebark maples, is famous for the strikingly banded patterns that develop on the trunks and branches of the various species in the group. One of my favorite maples in this, or any other, section is *Acer micranthum*. This large shrub or small tree can reach 30 feet in height and features an airy crown made up of slender and graceful branches. The delicate impression of the species is taken even further by the small and intricately clipped leaves that resemble bright origami birds. In the autumn, the leaves put on an unrivaled color

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**ABOVE LEFT:** The un-maple-like leaves of the nikko maple turn bright red in late fall. (Photo courtesy the SJG Bloom Blog)

**ABOVE RIGHT:** The intricately clipped leaves of *Acer micranthum*. (Photo by Crusier, courtesy Wikimedia Commons)



sequence from pink to orange to brilliant red. *Acer micranthum* is relatively common in middle and upper-mountain forests on the main islands of Honshu, Shikoku and Kyushu. However, this remarkably beautiful tree is quite rare in cultivation. Seed of the species seems to be very intolerant of dry storage, and attempts at germination are almost always very poor, which may explain why it is so rarely seen in gardens. Only one cultivar, 'Candelabrum', is recorded, and it appears to be only marginally distinct from the typical form.

Keep exploring the Section *Macrantha*, and you will soon discover the red snakebark maple, *Acer capillipes*. In sharp contrast to the delicacy of *Acer micranthum*, the red snakebark maple is a big, bold tree. This species can reach 60 feet high in habitat, and its attractive trunk and branches are marked with longitudinal stripes of pale green or gray set on a field of dark green or olive. The pretty leaves can be more than four inches long and are shaped like a lopsided hexagon, with the central and adjoining pair of lobes slender-tipped and prominent, and the lower pair of lobes much reduced. This Japanese endemic is found at scattered locations on the islands of Honshu and Shikoku, though it is most common in the mountains around Tokyo. True to the common

name, the young shoots of this handsome landscape tree emerge bright red in the spring, and this color is retained on the petioles and stems through the season.

Traveling onward, we encounter *Acer carpinifolium*, a most unusual piece of the botanical landscape. As the sole member of the Section *Indivisa*, *A. carpinifolium* is "an island unto itself" and truly unique among all maples of the world. And, oh what an island it is! Its numerous, wide-spreading branches form a large shrub or small tree with a wide, mushroom-shaped crown. While its broad and often low crown might limit its usefulness in small gardens, a well-grown specimen—clad in its pale, yellow-green spring foliage—is a spectacular sight. But for all the beauty of this species, its appearance is deceptive, and even a maple expert could be forgiven for mistaking it at first glance. This most un-maple-like species has lance-shaped leaves with prominent parallel veins and serrated margins that are remarkably similar to the leaves of hornbeams in the genus *Carpinus*. In habitat, *Acer carpinifolium* can be found as an understory element in mixed deciduous forests at low to middle elevations on the main islands of Honshu, Shikoku and Kyushu. Only a single cultivar, 'Esveld Select' is in commerce. This dwarf, upright selection makes it possible for

ABOVE LEFT: The captivating fall color of *Acer cissifolium*.

ABOVE RIGHT: The hornbeam-like foliage of *Acer carpinifolium*. (Photos by Jean-Pol Grandmont, courtesy Wikipedia Commons)

even a small garden to accommodate this lovely “island” species.

Returning to the taxonomic mainland, we arrive at the final destination on our tour, the Section *Trifoliata* and the elegant *Acer maximowiczianum*. Fortunately, the common name, nikko maple, is as easy to pronounce as the botanical name is challenging. This sturdy tree can reach 50 feet high in the wild and features smooth, pale-gray bark and a broad, rounded crown. It is yet another un-maple-like species with trifoliate leaves composed of three large, oval leaflets that are fuzzy and blue-gray beneath. The native range of the nikko maple includes the main Japanese islands of Honshu, Shikoku and Kyushu, as well as parts of central China. This tough, cold-hardy and slow-growing tree makes a distinctive presence in the landscape at all times of the year, but never so much as in autumn. It is then that *Acer maximowiczianum* takes center stage as one of the last maples to color, moving through a long progression of shades from pastel

yellow to watermelon pink and culminating in a rich crimson that can hold well into November.

Footsore but satisfied, we have journeyed a considerable distance through the landscape of the “Japanese maples.” And all that way with scarcely a mention of *Acer palmatum*! While this remarkable species and its myriad cultivars hold a supremely important place in our gardens, I find it humbling to recall that the flora of Japan is a far bigger place than any garden. By highlighting some of the best maple species native to Japan, this trip report begins to build a sense of the country’s rich and highly varied terrain. And don’t forget—there are still another 16 “Japanese maple” species out there waiting for you to discover! ~

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RANDALL HITCHIN is the outreach and major gifts manager for the Arboretum Foundation, and spent 14 years as the Arboretum’s plant collection manager. He is also the botanical editor of the “Washington Park Arboretum Bulletin” and a member of the “Bulletin” Editorial Board.



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# TREE DOWN

## Armillaria Root Rot Strikes Terror in a Seattle Garden

TEXT AND PHOTOS BY JEAN COLLEY



"Peter!!!" I shrieked. "Peter, where are you??? Where are you? Where's Ben???"

It was Sunday, September 20, 2013, 4 p.m., a sunny afternoon with winds gusting intermittently. I was sitting at my computer in my upstairs office, writing an article due the next day. I heard a tremendous crack, and looked up from my screen as a huge tree hurtled down our hillside, taking everything in its path.

"Peter!!!"

I raced downstairs to find my husband, Peter, coming out of the bedroom. Ben, our dog, looked up from his usual spot in our hall closet.

"Peter, a giant tree just fell down, a tree fell down!"

In moments, I texted my friend Kit Kelly, "A tree fell, taking half our back garden!"

Broken twisted and tangled branches smoothed our entire lawn. The falling tree sheared limbs more than 20 feet long from a Douglas fir. Our beloved ornamental cherry tree took a direct hit, leaving the main leader crippled and dangling. Hydrangeas, a rhododendron and a cryptomeria in the tree's path were walloped, hard. A small foot bridge, part of our network of trails, was smashed.

"What are we going to do???" I was so rattled, I couldn't remember the name of our insurance company, much less where we kept the policy.

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ABOVE: A large sugar maple succumbs to root rot in the author's hillside garden.

## The Root of the Problem

Our house and woodland garden often seem to us a seamless whole. From large windows, in rainy or cold weather, we look at our hillside with its sweet mixture of old conifers, Japanese maples, sword ferns, hydrangeas, rhododendrons and more.

In good weather, we lounge in Adirondack chairs on the patio, tracking the ever-changing tableau. Over the years, we have built trails and simple decks with benches on the hillside so we can visit the garden up close, as well as view it from afar.

We had finished our most recent trail and bench in January 2012, near the tree that came down. The tree was growing just outside the edge of our property, and I didn't know what kind it was. I had noticed that it was leaning down the hill a bit. Right next to it were western red cedars and a dense thicket of laurel and Indian plum.

Three days after the tree fell, a crew with chain saws showed up at 7:30 a.m., and by 3:30 p.m. all the debris was gone. The crew estimated the tree had been 80 feet tall and

quickly identified it as a sugar maple (*Acer saccharum*), a non-native in the Northwest. It had snapped off at the base, and the workers could easily see the black "shoestrings" or rhizomorphs indicative of the fungus *Armillaria* in the buttress roots, as well as extensive decay throughout the lower trunk area. Attempting to console us, they said that the damage to the garden "was less than it could have been" because the tree was reaching for the light and had only a few lateral branches.

## Arboretum Sleuth

In May of this year David Zuckerman, manager of horticulture and plant records for UW Botanic Gardens, stopped by to look at the remains of the tree's base. The *Armillaria* rhizomorphs were still visible.

"Why *Armillaria*, and why now?" I asked him. *Armillaria* is ubiquitous in soils in our area, he replied.

Perhaps Peter and I disturbed the tree's roots when we built the nearby trail and bench, but that's not a certainty. "If a tree is stressed in any

**BELOW LEFT:** Black shoe-string-like rhizomorphs of *Armillaria* visible at the base of the sugar maple.

**BELOW RIGHT:** White mycelial fans of *Armillaria* also visible at the base of the fallen tree.



manner, the fungus can attack," David said. "Sometimes it can go pretty fast."

We have a couple of stumps on our hillside that are likely reservoirs for *Armillaria*, David noted, and the rhizomorphs can grow out in the soil one to three feet per year from an infected stump. The stumps should be removed to decrease the fungal population, but that would be a difficult proposition for us. The decaying stumps serve as habitat and a food source for a variety of birds, which Peter and I enjoy seeing.

In retrospect, was the fact that the tree was leaning a red flag? "Typically, it's always a good idea to call in a certified arborist if a tree is leaning to see if it is safe and sound or not, particularly if it's on a steep slope," he answered. "At the Arboretum, there have been several cases of leaning trees that have been propped or cabled because they do pose an inherent risk of failing; on the other hand, many trees that lean are perfectly sound and fine. They can lean their whole life without posing any risk of failure."

#### Armillaria in the Arboretum

How has the Arboretum dealt with the *Armillaria* fungus?

"We don't treat," David said. Instead, the Arboretum's arborist, Chris Watson, regularly inspects all of the trees in the park, including non-collection trees in the native matrix, and if he detects *Armillaria* root rot, then that tree will go on his monitor list. To inspect a tree, Chris may tap it with a soft-faced hammer, and because he has an experienced ear, he can detect changes in sound pitch where decay has occurred. He may use tools like the Resistograph, a needle drill that bores a small hole into the tree to measure and record the relative resistance of the inner wood.



In the fall, if honey mushrooms—the fruiting bodies of *Armillaria*—pop up, that's a tipoff. But the real concern, David said, are the "shoe-string" rhizomorphs. "If you see them living on the tree, whether on the root or root flare, that's definitely a red flag," he said. If Chris peels back the bark and finds a white mycelial fan—a thick, white, fan-shaped mat of fungus—that indicates an advanced case of *Armillaria* infection and means there is a significant amount of decay.

In the 1990s, in the Loderi Valley, *Armillaria* infected several bigleaf maples (*Acer*

ABOVE: Workers using chain saws to clear the debris.



*macrophyllum*) and Arboretum staff quickly decided to remove them.

Despite the staff's vigilance, trees have fallen. In 1987, a katsura tree (*Cercidiphyllum japonicum*) in the Woodland Garden came down. "It was a total uproot," David said. "It was a significant failure. When we walked in there, we could see the rhizomorphs all over the place like you couldn't believe. The thing was, on the outside, the tree looked pretty healthy."

#### Be Aware of the Root Flare

Given the desirability of large trees, as part of nature's canopy, what can home gardeners do to preserve the health of their behemoths and avoid catastrophe? Besides calling an arborist about trees that are leaning, David stressed the need for trees to have visible "root flare." Root flare is that outwardly curving base of a tree trunk, where it joins the roots.

On a large hemlock (*Tsuga heterophylla*) on our hillside, we can clearly see the individual root buttresses—a good thing. But if you can't see

these buttresses, you need to gently and slowly "unbury" the tree, David said, by using hand tools and gloved hands to brush and pull back the plant debris and soil that have accumulated around the trunk, being careful not to damage the bark or roots.

"Homeowners should definitely focus on that," he emphasized.

The uphill side of trees on slopes, particularly, can be buried. "Those trees can develop a duff layer that is deeper than you normally would expect," he said. That's why arborists go in and physically remove that layer and look at the junction around the root crown where the soil and the root flare meet.

"That's a very critical boundary—you need gas exchange for the tree to thrive. It can be a moist environment that is conducive to decay. We find that all the time in the Arboretum. We pull back that soil and litter a lot. It's a really beneficial and important practice."

Even ground covers—including grass—should not be covering the root flare of the tree. In areas

**ABOVE:** One year after the tree fall, the author's garden is recovering. She preserved a section of the trunk on site to act as a "nurse log," providing habitat for insects and other creatures.

of lawn, the Arboretum staff prefers to lay down a wide layer of mulch (a “tree ring”) to prevent mechanical damage to the root flare and trunk from mowing and line-trimming.

### Avoid Irrigation Errors

The worst infestations of *Armillaria* in the Arboretum have affected mostly deciduous trees, but *Armillaria* can also attack conifers, ornamentals and forest trees of all kinds. It’s a problem in dry areas as well as in wetter environments.

Even though the canopy where our sugar maple fell was so thick that the ground seemed perpetually dry, watering—particularly on natives—is not necessarily beneficial. For that reason, David said that home gardeners should pay attention to their sprinkler systems. Sprinklers aimed at the trunks of large native trees in the summer turn out to be a bad idea, he said. “The natives are acclimated to our dry summers, so we don’t want to be blasting water on the lower parts of those trees.”

At the Arboretum, when the irrigation system was installed in the 1980s, “we didn’t give a lot of thought to what the water was hitting,” he said. “We’ve probably exacerbated some problems because a lot of our collections require summer water, but natives don’t. You are creating the environment that *Armillaria* likes.”

“In recent years, we’ve cut way back on our use of sprinklers,” said David. “We don’t blanket big areas. Primarily, we water our new plants to help them get established.”

Home gardeners should also be on the lookout for slow leaks if they have underground sprinkler systems. “Those leaks can cause problems if they are near trees,” David noted. And if you’re putting in a sprinkler system, make sure you don’t trench near a tree—and that means keep well beyond its drip line. “You can save the roots by tunneling underneath them,” he explained. “You don’t want contractors using heavy equipment and disrupting major roots.”

In the year since our tree went down, an arborist and an experienced tree gardener inspected our three Douglas firs (*Pseudotsuga menziesii*), bigleaf maple (*Acer macrophyllum*) and hemlock and gave them a clean bill of health. We’re following David’s advice on root flare and our sprinkler system. When the wind blows now, we’re back to enjoying watching the huge branches sway. We’re gradually moving past the worry that another large tree will suddenly fall and wreak havoc. ~

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**JEAN COLLEY**, an editor and writer, is a member of the board of directors of the Friends of Yesler Swamp.

## Armillaria Quick Facts

**COMMON NAMES:** Honey mushroom, shoestring root rot.

**DIVERSITY AND DISTRIBUTION:** The genus comprises about 40 species, nine of which occur in the U.S.

**ECOLOGY:** Can be parasitic on living hosts or saprophytic on dead plant material. Attacks already stressed or weakened plants, but can also infect healthy plants.

**MEANS OF INFECTION:** Primarily by underground, string-like hyphae called rhizomorphs.

**SYMPTOMS:** May include chlorotic (pale) foliage, bleached wood, branch dieback and crown thinning. Resinous conifers may exhibit abundant resin flow. Clusters of yellow mushrooms may form around the base of the plant in fall. Reddish brown to black rhizomorphs may be visible within bark or surrounding soil. White mycelial fans may be present under bark.

**SUSCEPTIBLE SPECIES:** Hundreds of species of trees, shrubs and vines.

**RESISTANT TREES:** Larch, birch.

**TREATMENT:** No truly effective cure. Fumigation to eradicate the fungus from soil has been largely unsuccessful and is not recommended. Cultural control mainly focuses on reducing stress factors that lead to infection, creating buffers with resistant species, and removing infected stumps.

# There's Soil Under Them There Plants!

BY PAIGE EMBRY / PHOTOS BY NIALL DUNNE

*I*n Part I of this article<sup>1</sup>, I discussed how glaciers—repeatedly grinding down from Canada during the last two million years—created the parent material for most of the soil in Seattle and the Arboretum. Part II will zoom in a little more closely on some of the specific soils of the Arboretum and examine how they affect the plant collections and the staff's approach to managing them.

As I wrote about in Part I, four basic materials are the source for most of our region's soils: glacial till, a mélange of unsorted material of all sizes; glacial outwash sands from meltwater rivers; silty clays from glacial lakes and riverine flood plains; and organic/peat deposits, where plants have filled in low areas and are not completely decomposed. This doesn't mean that there are only four soil types—oh no: The King County Soil Survey lists around three dozen types, and figuring out which is which on the ground isn't always easy.

Why such diversity? It's because parent material is just one of five key factors in soil

formation. The others are climate (primarily temperature and rainfall), living organisms (such as lichens, plants and people), topographical differences (for example, soil on slopes tends to be thinner than low-lying areas, due to erosion), and time (the age of a soil affects its profile). Change one factor, and the soil changes. In the Arboretum, the factors that exhibit the most significant controls are parent material, topography and living organisms—particularly people.

Soil surveys have identified nine soil types in the Arboretum—quite remarkable for such a relatively small area. The two main surveys<sup>2,3</sup> (in 1966 and 1977) agree on the four most-abundant types and don't on the others. Ah, the joys of soil taxonomy!

## Arboretum Soils

Soil taxonomy is fraught with arcane language hiding nuggets of useful information. One of the first lines in the official description of the Alderwood Series (abundant in Seattle and the Arboretum) is that its taxonomic class is “Loamy-skeletal, isotic,



mesic Aquic Dystoxerepts.” Well, that’s enough to stop one cold, but keep reading—helpful information is tucked away in the verbiage.

The Alderwood is a soil built from glacial till and is often referred to as the Alderwood gravelly sandy loam. Given that till is all the unsorted material (which can range from infinitesimal clays to car-sized boulders) carried along in a glacier, it might better be called “rocks of random sizes, embedded in a matrix of sand, silt and bits of clay,” but “gravelly sandy loam” is shorter. One of the key features of the Alderwood is the presence of a hardpan (a layer of densely compacted soil) 20 to 40 inches down. If the hardpan is on the shallower side, plant growth can be compromised due to waterlogging or inadequate root space. Alderwood soils are found on slopes and hilltops along the length of the Arboretum, including in the new Pacific Connections Garden.

Whether the Alderwood is a “good” or a “bad” garden soil depends not just on the depth of the hardpan but also on variables such as the size and quantity of the drift material (rocks), and how well or badly the soil has been treated. The “crap” under my sidewalk in PART I of this article was Alderwood. It was bad for two reasons: one natural and one machine-made. This particular batch of Alderwood was, by nature, stuffed with rocks. Add man-made compaction from sidewalk construction and the resulting material had my poor husband cursing me under his breath for a week as he dug and loosened. Worse, the all-important soil structure had been destroyed. (See “Soil Texture Versus Structure.”)

Another common soil type in the Arboretum is the Indianola. It formed through sandy glacial outwash and is referred to as “somewhat excessively drained”—which means, “Expect to do plenty of watering.” However, the addition of organic material helps these sandy soils hold on to both water and nutrients. Like Alderwood, Indianola soils are mostly found on slopes and hilltops in the Arboretum.

The third major Arboretum soil, Bellingham silty clay, is found primarily on Foster Island. Bellingham soils are made from very small mineral pieces—mostly former lake or flood plain

deposits—and tend to be soggy things that occupy low-lying ground. One can drain wet soils on uplands, but draining a bottomland is problematic. So these are areas where one should, in general, just succumb and plant things that are happy to grow in wet ground. Other low-lying areas of the Arboretum also tend to the silty and soppy. (It’s mostly on these soils that the 1966 and the 1977 surveys can’t agree.)

The Arboretum also has a few “organic” soils. There are many different ways to make organic soils, but usually they are wet, squelchy things with significantly more organic matter than normal or “mineral” soils. They can be found in swampy areas marginal to Lake Washington and Arboretum Creek.

One last Arboretum soil worth mentioning is classified as “Anthromorphic,” meaning human made. In a sense, most of the soils in the Arboretum have been somewhat modified by human hands—but in the stricter sense, the term applies to a mixture of fill and garbage at the northern tip of the Arboretum and the WSDOT Peninsula, the site of a former landfill, the Miller Street Dump. The quality of this soil varies, depending on the depth and texture of the fill layer on top and the nature of the garbage underneath.

### **Plant Collections and Soil Management**

The story of managing the soils for the plant collections at the Arboretum seems to be largely a story of water—both too much and too little. Before major plantings go in, soils are assessed, and adding drainage and catch basins is, and has long been, part of creating any new planting. Christina Pfeiffer, former horticulturist for the Arboretum, says that the Arboretum is stuffed with Depression-era, clay-tile drainage, installed by Works Progress Administration crews—some mapped and some not<sup>4</sup>. Over the years, changes have taken place above and below ground: Plants have grown, sucking up water and re-shaping the ground; gravity has taken its toll, modifying slopes and low-lying areas; and some drainage tiles have been offset—turning areas that were once well drained into water-logged spots and vice versa.

One example is the *Sorbus* Collection, located along the Broadmoor fence, next to the magnolias and planted on Indianola soil. Back in the early 1980s, the *Sorbus* started showing signs of distress, and the ground was staying waterlogged for extended periods, which was odd for the sandy Indianola. Pfeiffer says a percolation test showed that the soil was still draining water quickly. But further investigation revealed that changes in slope gradient at adjacent Broadmoor (due to berm construction)—and within the *Sorbus* area, where buttress roots of some conifers had raised the ground in places—had increased run-off and created a hollow that prevented water from reaching a catch basin. Pfeiffer says she and her colleagues laid underground drainage connecting the soggy ground to that catch basin, and it was “like pulling the plug out of a bathtub.”

Conversely, when a collection of sumacs along Arboretum Drive next to the Woodland Garden showed distress, Pfeiffer and her crew examined the soil and found it to be dry and cracked—indicating a clayey substrate with a lack of organic matter. (The soil map shows

Alderwood in this area, but the high clay content suggests a different soil type.) Amending an already planted area is difficult because of the potential to disturb the roots. The Arboretum staff waited until fall, when the soil was damp enough to work, and gently raked compost into the crusted surface. They then applied about three inches of wood chip mulch. After several years of additional mulching, the sumacs returned to robust health.

### Right Plant, Right Place

The “right plant, right place” mantra of sustainable garden design has been practiced in the Arboretum at least since the days of Brian Mulligan. The original plans for the Arboretum, developed by the Olmsted Brothers and James Dawson, sited plants based on their taxonomic groupings and perceived evolutionary relationships rather than their cultural requirements. But during his influential tenure as Arboretum director (1946 to 1972), Mulligan was never afraid to ditch these plans in favor of ensuring that the plants he installed got what they needed in terms of soil, water and sunlight.

## Soil Texture Versus Structure

Every soil has a texture that is inherent and a structure that is changeable. The soil texture is just the relative percent of sand—(1/16–2 mm), silt—(1/256–1/16 mm), and clay-sized (<1/256 mm) material in the soil. The holy grail of soil textures is loam because it holds nutrients and water without becoming waterlogged. Loam is about equal parts sand and silt, with a good helping of clay (about a 40%–40%–20% concentration, respectively); if you want one, plan on moving because true loams are scarce around Seattle. You can add compost or manure to your soil until your back gives out, and you won’t change the texture. But you can change the structure.

Good structure can make up for a less than ideal texture. Whereas soil texture is about the individual mineral grains, soil structure is about how those grains are clumped together with organic matter into pieces called “peds.” If you look at a handful of good soil, it will often consist of balls (granular peds). Large balls of soil crumble easily in the hand to form smaller balls. Clay grains and organic material hold these peds together, so adding organic material to a soil with poor structure is a way to start building peds. Soils with good structure have big holes that empty quickly after a rain, so there is oxygen in the soil (needed by plant roots and beneficial soil critters) and small holes that hold onto water and store it for later use by plants. Compaction of soil—through driving, excessive walking, piling wood, rototilling, applying pesticides that kill off soil life, and more—destroys peds and structure and should be avoided.

Mulligan's legacy lives on today. Sometimes, however, due to space constraints—and the fact that the Arboretum has its fair share of crappy soil—certain plants have to be sited in soils that just don't agree with them. This has happened in recent years with the construction of the New Zealand Forest at Pacific Connections and the re-location of the Holly Collection (to make way for Pacific Connections).

To compensate for poorly draining Alderwood soils—coupled with high rates of runoff from Broadmoor—at the site of the New Zealand Forest, the Arboretum brought in new, high-quality topsoil, planted specimens on mounded beds, and created a network of rock-filled streambeds for drainage. For the relocation of the Holly Collection, the Arboretum commissioned a detailed soil analysis of the proposed new site, just north of the Japanese Garden, along Lake Washington Boulevard. The soil study found heavy, silty-clay-loam—"representative of the Bellingham series"—on the lower, grassy slopes of the site. It also found glacial till and a hardpan layer between 13 to 23 inches (indicative of Alderwood) on the upper, forested slopes. As a result, Arboretum staff brought in new soil and planted the hollies on a series of contoured berms.

The majority of the hollies were transplanted in the fall of 2007, and most have fared well—at least with respect to drainage issues. The New Zealand collection has been in the ground such a short time that it is too soon to tell.

David Zuckerman, the current manager of horticulture at the Arboretum, says areas of the Arboretum have soils that are pleasing to a manager, and some that are not. The camellias, for instance, are located in one of those happy-making areas where drainage is adequate but



not excessive. (The 1966 soil map shows the Camellia Collection spread over both Indianola and Alderwood soils.) Then there is Azalea Way, which may be the bane of every caretaker the Arboretum has seen, with its seemingly un-resolvable drainage issues—likely a combination of poorly draining soils (Alderwood

on the north end) at the bottom of a hill and heavy usage causing compaction. Zuckerman also notes that, interestingly, the anthropogenic soils at the site of the former dump seem to grow a crop of toxic weeds—such as bittersweet nightshade and poison hemlock—that seldom appear elsewhere in the Arboretum.

Soil is a bit like the weather: Gardeners are always complaining about it! "My soil holds too much water or too little...it's too rocky...too clayey...warms up too late in spring..." The next time you are bemoaning your soil's inadequacy, pity the poor Arboretum gardeners. You likely have only one annoying soil type to cope with; at the Arboretum, they have them all. ~

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**PAIGE EMBRY** has been gardening in Seattle for 25 years, at the moment on a tiny lot in Wallingford. She is a former geologist and garden designer turned writer. She writes about gardening at the blog, "A Year in Seattle Gardens" ([www.ayearinseattlegardens.com](http://www.ayearinseattlegardens.com)).

## References

1. "Geology of the Arboretum, PART I: Blame the Ice Age for Your Dirt," by Paige Embry. "Washington Park Arboretum Bulletin," Volume 76, No. 2, 2014, pp. 16–19.
2. "Soils of the Arboretum," by Stanley P. Gessel. "Washington Park Arboretum Bulletin," Volume 24, No 3, 1966, pp. 69–83.
3. "Soils of the University of Washington's Arboretum," by Rob Emery. 1977. (Available in the Miller Library.)
4. "The Arboretum Underground," by Rebecca Taylor. "Washington Park Arboretum Bulletin," Volume 59, No. 2, 2001, pp. 14–15.

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**ABOVE:** *Ilex ciliostipulosa* planted on a mounded bed in the Holly Collection. The bed provides good drainage for plant roots in a site that is prone to waterlogging.

# Q&A from the Miller Library's Plant Answer Line

## “Self-Cleaning” Witch Hazels

BY REBECCA ALEXANDER

This regular column features select Q&A from the Elisabeth C. Miller Library's Plant Answer Line program. If you'd like to ask a plant or gardening question of your own, please call 206-897-5268 (UW Plant), send it via the library website ([www.millerlibrary.org](http://www.millerlibrary.org)), or email directly to [hortlib@uw.edu](mailto:hortlib@uw.edu).

*Hamamelis x intermedia ‘Winter Beauty’*  
in the Witt Winter Garden. This variety  
scored moderately well for fall leaf drop  
(30% retention) and scent in a 2011 study.  
(Photo by Niall Dunne)



**QUESTION:** I'm wondering if there is a way to get the leaves to drop off of my witch hazel in the fall, or before it blooms in winter? If I add another witch hazel to my garden, I'd like to find a “self-cleaning” one!

**ANSWER:** Some witch hazels have a habit of holding onto their dead leaves (this is called

marcescence). Leaf drop (leaf abscission) can also be affected by weather patterns or by the age of the tree. The only way to get the leaves off the tree before they finally drop by themselves is to remove them gently by hand.

An article by Phil Clayton, published in the January 2007 issue of “The Garden,” mentions that some yellow-flowered varieties have this

leaf-retentive trait. Here is an excerpt which quotes *Hamamelis* expert Chris Lane:

"A [...] free-flowering yellow selection [...] is *H. × intermedia* 'Ripe Corn'. The only downside is its habit of hanging onto old leaves as the flowers open. This trait occurs in some other cultivars and is usually frowned upon by growers [...] A mild autumn followed by a sudden frost can make more leaves hang on to branches. Fortunately, as with *H. × intermedia* 'Ripe Corn,' older plants often grow out of the habit."

A post entitled "Ranking the Scents and Sights of *Hamamelis*" on the Scott Arboretum's "Garden Seeds" blog ([blogs.scottarboretum.org/gardenseeds](http://blogs.scottarboretum.org/gardenseeds)) in February 2011 states that "some cultivars of witch hazel tend to hold their leaves from the previous fall, thus masking the spring flowers. This does not appear to be solely a condition of genetics, but also might have to do with weather condition, soil conditions, and possibly the species of witch hazel on which it was grafted."

The post also included a chart, "Ranking Leaf Retention and Fragrance of *Hamamelis*." Here are some varieties that not only scored well on the chart (0% retention) for dropping their leaves but are also fragrant:

*Hamamelis × intermedia* 'Aurora'  
*Hamamelis × intermedia* 'Doerak'  
*Hamamelis mollis* 'Wisley Supreme'  
*Hamamelis vernalis* 'New Year's Gold'  
*Hamamelis vernalis* 'Orange Sunrise'

Chicago Botanic Garden's Bernice E. Lavin Plant Evaluation Garden researched garden-worthy witch hazels (see "Which Witch Hazel Should Be in Your Yard," by Karen Zaworski; [www.chicagobotanic.org](http://www.chicagobotanic.org)). In the garden's trial, two cultivars of *Hamamelis × intermedia* stood out as excellent landscape choices: 'Little Suzie', for its compact habit and abundant flowers, and 'Harvest Moon', because it drops its leaves before the lemon-yellow flowers open. ☺

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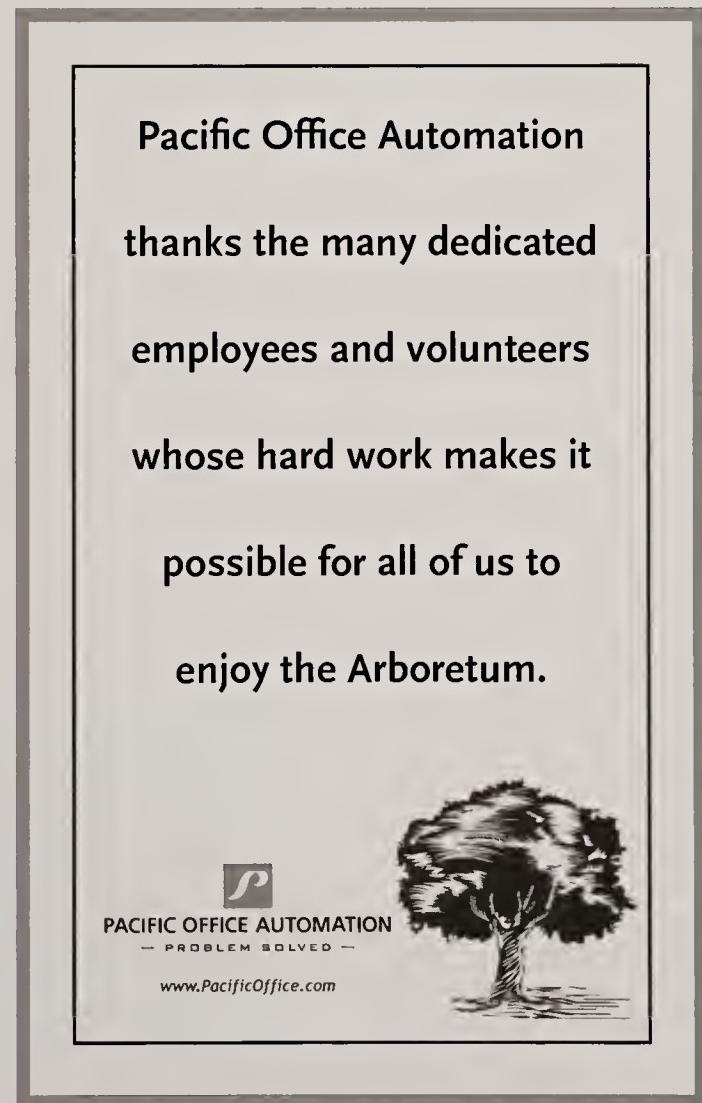
**REBECCA ALEXANDER** is the plant answer line librarian at the Miller Library, located in the UW Botanic Gardens' Center for Urban Horticulture (3501 NE 41st Street, Seattle).



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# New Books for Pacific Northwest Gardeners

BY BRIAN R. THOMPSON

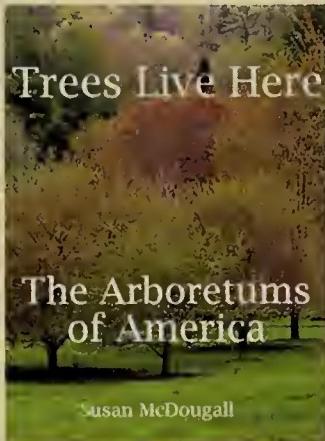
## Arboreta of America—Starting Here at Home

There are very few books specifically dedicated to arboreta, and it is always exciting when a new one is published—but even more exciting when the author lives in Seattle! In “Trees Live Here,” Susan McDougall has photographed and written about 33 arboreta throughout the United States, but her “home” arboretum is our very own Washington Park Arboretum. Of course, I turned to that chapter first.

McDougall’s camera leads the tour. While the photos showcase the color of Azalea Way in spring, and floral highlights from the Witt Winter Garden, the author also favors some of the less well-known collections. The Pinetum and conifers throughout the Arboretum are highlighted, as are the lindens (*Tilia*) at the north end. (I need to spend more time exploring both of these areas.) Elsewhere the subjects may be familiar, but the focus is often on unexpected features such as leaf buds swelling in spring or close-ups of peeling bark.

The photographer’s eye is clear in McDougall’s description of the Hybrid Rhododendron Garden. “It is not necessarily a photographer’s dream, for though this collection is uniquely-colored and filled with leaves of varying brightness and size, the shades and angles of flowers and stems pose a challenge for the camera.”

Tearing myself away from “our” chapter, I found other Pacific Northwest arboreta presented, including the Hoyt Arboretum in Portland, the Peavy Arboretum in Corvallis, and



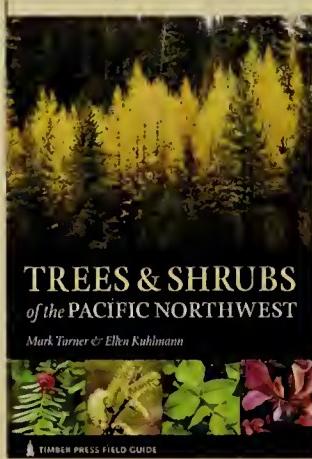
the University of Idaho Arboretum in Moscow. Like in all the chapters, the photographs “...provide a sense of the plants in each arboretum’s collections, while the text serves to describe, augment, and inform.”

The introductory chapters answer such basic questions as “What is an arboretum?” and “What is their history?” while also tackling more challenging topics, such as “Why are they still important?” This is partly answered in the criteria for those arboreta selected for this book, which require an accessioned collection with records of provenance, a staff that is committed to public education, and programs dedicated to outreach, conservation and research.

As an interesting aside, McDougall did most of her research by train, traveling with her husband, David Biek, with whom she collaborated on a 2007 book on the flora of Mount Adams. In the spring of 2011, they took Amtrak to all four corners and the middle of the country, visiting 28 arboreta and taking 15,000 photos, timing their arrivals in each location with the coming of spring. Quite an adventure!

## A New Guide to Native Trees and Shrubs

Mark Turner, another gifted photographer, has produced his second Timber Press Field



Guide: “Trees & Shrubs of the Pacific Northwest,” co-authored with Ellen Kuhlmann. As with his earlier book on the wildflowers of the region (co-authored with Phyllis Gustafson), this is designed for use in the field. Quickly accessible inside the front

and back covers are diagrams of the various types of flower parts, leaves, fruits and seeds. The cover is weather resistant, and a ruler—marked in both inches and centimeters—is handily placed on the back cover.

This guide is also very comprehensive. “While a few readers may gripe about the size and weight of this volume, we chose to err on the side of clarity and include at least a pair of photographs for most of the 568 taxa that have a main entry.” The authors also joke that this book was “...our excuse to learn the willows,” and sure enough, 28 pages are devoted to the genus *Salix*, which is notoriously difficult to identify at the species level.

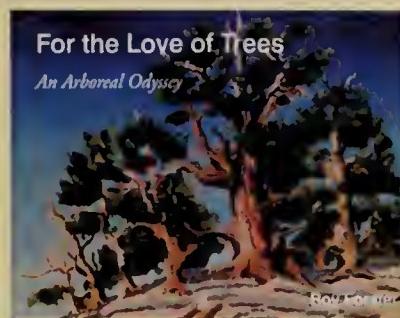
The plant descriptions begin with conifers, followed by angiosperms divided by leaf types. There are no keys, but the extra photographs, and their high quality, makes identifying plants in the field pretty straightforward. The range maps include all of Washington and Oregon, along with southern British Columbia and Northern California, and show all the counties or regional districts where each plant has been documented. The maps are a fascinating study all on their own.

The helpful introduction is only slightly modified from Turner’s earlier book, but no matter. It is valuable information on how to get the best use out of this book and make the most of your plant exploration. The descriptions of the different ecoregions could make a useful booklet by themselves.

### Love of Trees

Roy Forster was the first curator and director of the VanDusen Botanical Garden in Vancouver, British Columbia, designing many of the plantings that help make this one of the outstanding botanical gardens in our region. “For the Love of Trees” is in some ways Forster’s autobiography, but the format is quite unusual, in that he uses his own paintings to tell most of that story.

His life has taken him to many locations, providing a wide range of subjects for the “Arboreal Odyssey” of his sub-title. After making comparisons to Homer, he clarifies that “the giants of my story are not fearsome cyclopean



monsters but giant redwood trees, ancient venerable pines, and cedars that ascend to the sky.”

Many of his subjects are found in

another gem of the Vancouver landscape, Stanley Park. While the large conifers are well-represented, my favorite piece is of a particularly large red alder (*Alnus rubra*), shown in winter time “when the red dormant buds, twigs and catkins show on the naked branches, contrasting with the somber green of the coniferous forest.”

Travels have given him many more stories, and the human elements that surround his trees are significant. A hawthorn (*Crataegus monogyna*) is seen in front of the Glastonbury Tor, the legendary burial place for the Holy Grail. A venerable olive tree (*Olea europaea*) dwarfs the gates of Les Collettes, the garden of the painter Pierre-Auguste Renoir in southern France.

Throughout, Forster shares his philosophy on trees, which is also his philosophy on life. He describes the profits of his life as a tree planter in public landscapes: “The rewards are of a different kind, consisting mainly in the joy of observing the vigorous growth of the trees over the decades of life, knowing they will be there long after the planter is gone. There is a kind of love in that.”

### Northwest Private Gardens

Bill Terry and Rosemary Bates both had extensive careers in journalism. It shows in the quality of their interviews in “Beauty by Design,” a book about gardeners in a “passionate pursuit of perfection.” These profiles capture in just a few

pages the personality of their subjects, and the intimate relationship of gardener to garden.



Every chapter reads like a memoir. And each profiled gardener captivates with his or her unique approach to the art of creating a garden. Indeed,

## What is an Arboretum?

Susan McDougall begins to address this question in "Trees Live Here" by quoting the Oxford English Dictionary definition, which is simply "a place for trees." Her research found the first use of the term to be by John Claudius Loudon in his 1838 encyclopedia "Arboretum et Fruticetum Britannicum," which he translated in his subtitle as "The Trees and Shrubs of Britain."

Loudon not only wrote about his interest in trees, he acted upon it, establishing an arboretum in Derby, England. McDougall quotes from his writings to the Town Council, "The Derby Arboretum would not only serve as a source of recreation and instruction to the inhabitants of Derby and its neighborhood, but as a standard of nomenclature...the collection of trees and shrubs being one of the most extensive ever planted, and the whole being named with a degree of correctness scarcely to be found in any other garden." This standard of excellence for an arboretum is still very valid today!



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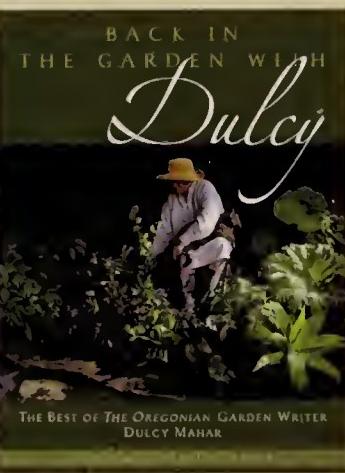
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many of the interview subjects are actual artists (including painters, poets and a potter) working in different media. Terry and Bates conclude that "these gardeners, indeed *all* gardeners, are alchemists of nature, art, and artifice."

Some of the 11 individuals or couples profiled—including Dan Hinkley, Linda Cochrane, George Little and David Lewis—are familiar names around Seattle. Most are better known in the gardening circles of southwest British Columbia, but a common theme is they have spent a significant part of their lives in other places and have been strongly influenced by very different climates, traditions and histories.



An example is Robin Hopper, a potter living in Metchosin, British Columbia, near Victoria. He describes the fusion in his garden as "Anglo-Japanadian." He is quite familiar with the various styles—he counts five—of Japanese gardening and acknowledges their impact, but the description of his garden makes it clear that it has its very own style.

"The forest floor is all happy chaos: hostas mingling with hellebores (*Helleborus foetidus*) in flower, the leaves of hardy cyclamen, bits of iris, various self-seeded woodland wildlings, and, most delightfully, the flowers of the white fawn lily (*Erythronium oregonum*). Birds and bugs must love this place."

### A Compilation of Garden Advice

A book that took me totally by surprise is "Back in the Garden with Dulcy," a selection of articles by Dulcy Mahar, who for 22 years wrote a gardening column for "The Oregonian" in Portland. Clearly, I haven't been paying enough attention to gardening south of the Columbia!

Sadly, Dulcy died in 2011 after a long battle with cancer, but she continued writing up to a few weeks before her death. Fortunately her husband, Ted Mahar, has edited and published a selection of her writings. I am completely charmed by the results.

While Ted is understandably also a fan, I heartedly agree with him when he describes her columns as "...filled with solid advice, warnings, lists, ideas and experiments worth trying, the latest trends, yearnings for a change of season, and more. Whatever the subject, Dulcy's wit glowed through. Pick a week, and you'd likely find a quotable quote."

I would add that she had a knack for reaching out to young or inexperienced gardeners, putting them at ease, urging them not to be afraid to just go for it. She also had a love of animals, especially her cats (although one lucky dog, Hector, gets a lot of press, too). One of her Wagnerian felines is poised with her on the front cover, "helping" in the garden.

An example of her advice: "Make a list so that you can get exactly what you need when you hit the nurseries and plant sales. Oh, I could hardly say that with a straight face. I am practically rolling on the floor, and the cats and Hector the dog are looking askance. Of course, it is excellent advice. But can I follow that advice? Hardly." ~

**BRIAN R. THOMPSON** is the Manager and Curator of the Elisabeth C. Miller Library of the University of Washington Botanic Gardens. He is also a member of the editorial board of the "Bulletin."

### Bibliography

- Biek, David and Susan McDougall. "The Flora of Mount Adams, Washington." Seattle: Sound Books, 2007. ISBN: 978-0-9776285-1-3, \$28.00
- Forster, Roy. "For the Love of Trees: An Arboreal Odyssey." Vancouver, BC: VanDusen Botanical Garden Association, 2010. ISBN: 978-0-9866445-0-4, \$30.00.
- Mahar, Dulcy and Ted Mahar. "Back in the Garden with Dulcy: The Best of The Oregonian Garden Writer Dulcy Mahar." Portland, OR: Carpe Diem Books, 2013. ISBN: 978-0-9897104-0-4, \$22.95.
- McDougall, Susan. "Trees Live Here: The Arboretaums of America." Seattle: Sound Books, 2013. ISBN: 978-0-9776285-9-9; \$55.00.
- Terry, Bill and Rosemary Bates. "Beauty by Design: Inspired Gardening in the Pacific Northwest." Victoria, BC: TouchWood Editions, 2013. ISBN: 978-1-77151-012-7, \$24.95.
- Turner, Mark and Ellen Kuhlmann. "Trees & Shrubs of the Pacific Northwest." Portland, OR: Timber Press, 2014. ISBN: 978-1-60469-263-1, \$27.95.
- Turner, Mark and Phyllis Gustafson. "Wildflowers of the Pacific Northwest." Portland, OR: Timber Press, 2006. ISBN: 978-0-88192-745-0, \$27.95.

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